

雪国の公営住宅の住居デザインに関する研究 －青森県を事例として－

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Study on House Design of PUBLIC APARTMENT HOUSES in SNOWY DISTRICT in case of Aomori PREFECTURE.

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Abstract

Recently, the snow problem has been actualized by a super-aged society in snowy district. As for the public housing, the dwelling for senior citizen is planned and the meeting room can live actively in winter.

We analyzed four dwelling plans as the final abode by investigating the public apartment houses in Aomori Prefecture. Firstly, the resident also has been aging, so park and meeting room are arranged in the center in consideration of the snow processing and easiness to use. Secondary, resident used the common space effectively. So SI method introduce to the dwelling unit it correspond to the living demand flexibly. Thirdly, snow measures of living building are done by using Gangi, and the park is made snow depository. Finally, funeral hall, dining room and Life-support center that the local resident can also use are planned in the meeting room. As the final abode, it is necessary to spent winter at ease and to have the relationship with local society.

Keywords : House Design, Public housing, Final abode, Snow measures, Snowy district

Introduction

Recently, the problem happens frequently that accident happens when senior resident is doing the snow unloading of the roof in the snowy district(photo1). The resident of public

housing is aging and problem is brought up to the outdoor space in winter)1. So, it is needed the role as the final abode from the transitory one.

This public apartment houses of ten years where it refrained from the less children and aging society, rebuilding by the stock use of the existing public housing unit has increased from the novel exploitation of a large-scale public housing. As for a recent house design, a

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traditional design has been taken from a past, uniform RC structure make convex layer house.

According to the past study about public apartment houses in snowy district, Nobuaki TAKITA 2) was clarified the usage of Gangi that caused the going out action in winter. Moreover, Atsunaga SUZUKI 3) was clarified the usage of the common hallway from the expression of plant.

We investigated easiness to use of meeting room in the public apartment houses in winter. As a result, the position and the snow measures became problems in the meeting room. There were problem enhancing the life in winter 4) .

Here we analyzed house design of public apartment houses in snowy district.



Photo1. Snow lowering by senior citizen

At first, we investigated where the snow problem appeared. From the research in the past and the result of the survey, we analyze as follow viewpoint about the snow problem ① Site planning and usage of the site in winter, ② Snow measures of apartment building and common space, ③ Condition of snow removed by the resident.

As the result, we proposed four house designs of the public housing in snowy district by comparing it with the early case. ① Site plan for use with local inhabitant, ② Self production unit, ③ Snow measures to ease living in winter, ④ Meeting room supports mind and body.

Present State of Public Housing in Aomori

After the 1980's, the assembly housing of the RC make was constructed in the public housing in Aomori Prefecture. In the town and village part, a wooden low-rise home where the regionality had been shown by the HOPE plan began to be built. The public housing of the novel exploitation has been built in 1998. Afterwards, rebuilding that made the best use of the existing public housing unit changed mainly.

Table 1.Outline of researched public apartment houses

Public housing	city	Construction year	Structure/Floor	Total house-holds(homes)	Meeting room	Gangi
Yamada	Mutsu	1999 ~ 2001	Wood/2	30	○	○
Kobata	Aomori	1998 ~ 2001	Wood/1,2	52	○	
Toyama	Aomori	1981 ~ 1992	RC/5	198	○	○
Hamamachi	Aomori	2004	RC/5	40	○	
Gappo	Aomori	1997	SRC/9	68	○	
Jyosei2	Hirosaki	1997 ~ 2000	RC/3	114	○	○
Jyosei5	Hirosaki	1998 ~ 2000	RC/4	48	○	○
Kikyouno	Hirosaki	1984 ~ 1987	RC/4	216	○	
Asahigaoka	Hachinohe	1989 ~ 1991	RC/3	104	○	
Total				870		

We researched the public apartment houses in the Aomori prefecture in November and December 2007, January 2009. Though 2007 and 2009 year were light snow, 2006 year was a heavy snow.

The investigated public apartment houses is comparatively new. Yamada and Kobata are low-rise homes, and public housing in Hirosaki and Hachinohe are medium-rise housing of the RC make. Hamamachi and Gappo are high rise housing of the city type.

Yamada, Toyama and Jyosei set up Gangi. As for the researched public housing, all the meeting room were set up.

After the problem is extracted based on these, it proposes the housing design.

Site Plan For Use with Local Inhabitant

Conventional public housing arranged the dwelling building in the parallel. After that the park and the parking lot planned. In case of Yamada, the meeting room is in the

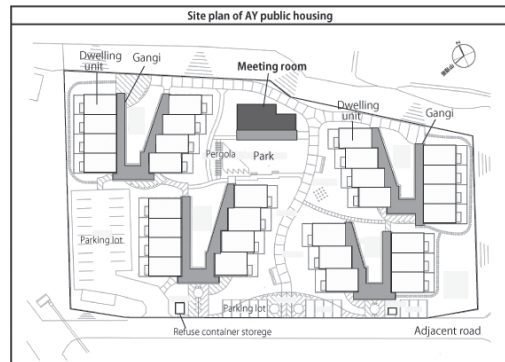


Fig. 1 Site plan concluded in public apartment houses

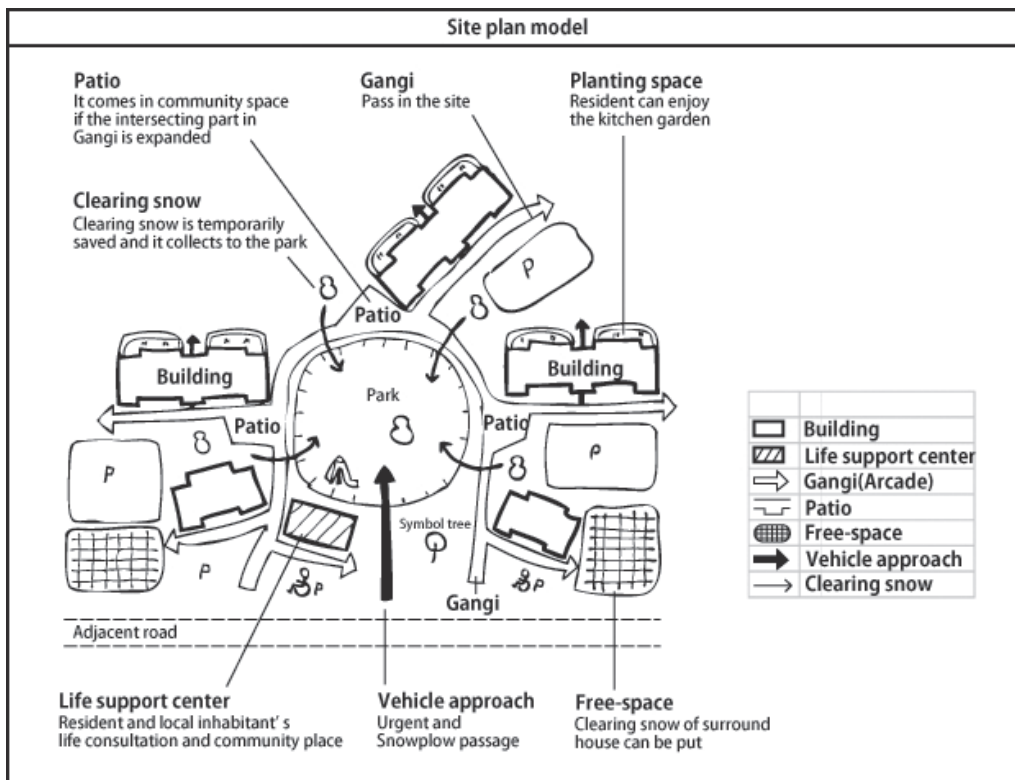


Fig. 2 Site plan for use with local inhabitant

interior of the site. The dwelling building is not connected with Gangi in the meeting room (fig.1).

An important thing is to plan the site in which it thought about the snow processing.

The park is arranged at the center of the site, and the meeting room is set up on the adjacent road (Fig. 2). The park can save the snow of the parking lot and the road. Making the site where it touched the adjacent road openhearted can save the snow removed from vicinity house. Life-support center (meeting room) is arranged near the adjacent road and Gangi (Arcade) are set up in the pavement. So, the user doesn't get wet because of the snow, and an outside person can also use it. In setting up patio in the Gangi, resident's conversation arises naturally.

Self Production of Dwelling Unit

It is important for the senior resident that the indoor life is centered to enhance daily life, so the dwelling can enjoy the hobby and the amusement and it live at ease is needed.

Resident's intention was examined researching the thing overflowed from the unit. The plant was put on the door front of unit and the stairs (photo2, 3).



Photo2. Plant in gateway



photo3. Plant in stair



Photo 4. Snow into Gangi



Photo 5. Snow measures by resident

The passage and the stairs where the window has adhered are places where it can enjoy planting even because of winter. The snow processing tool was put on Gangi ,but the snowfall was seen (photo4). The bamboo blind and the temporary housing seat were installed so that neither the snow nor the wind may enter the veranda (photo5).

It is necessary to change dress for the season also to the dwelling in snowy country to live long.

Recently, SI house is widespread as the house where the unit type corresponding to various living demands is supplied (fig.3). The life of SI house is long and the skeleton part can give the publicity, it is effective in the city planning and the townscape maintenance.SI method can be introduced, it correspond in the interior and the equipment of the unit and variety of life styles of the resident.

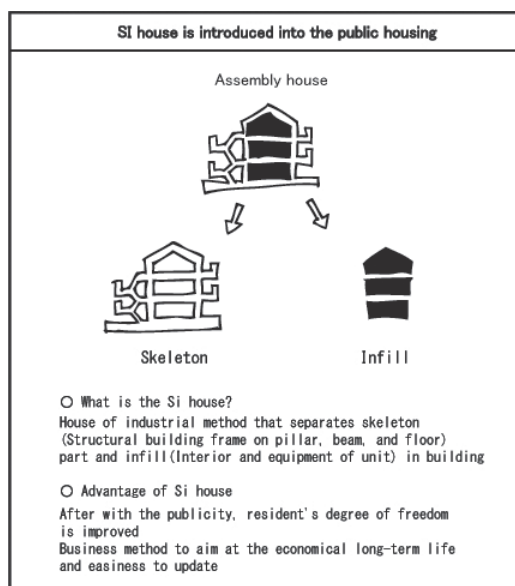


Fig. 3 SI house model



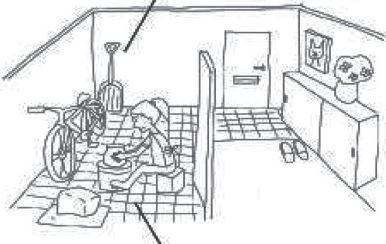
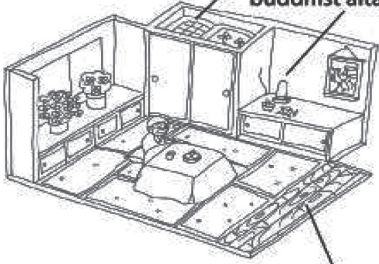
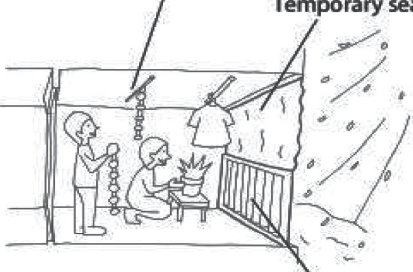

<p>① Front door</p> <p>Front door of unit appears individuality</p> <p>planting and adornment are put</p>  <p>Wooden door with warmth and light</p>	<p>② Interior</p> <p>Resident can repair the interior</p> <p>Repapering wallpaper and rebuilding of room arrangement</p> 
<p>③ earth floor in the door</p> <p>Large earth floor in the door is a place of hobby and storage space</p> <p>Tool frequently used is put</p>  <p>Hobby space</p>	<p>④ Japanese-style room</p> <p>When sliding door is made more than 1.5-ken, various usages can be done</p> <p>Enhanced storage space buddhist altar is put</p>  <p>Furniture is put on the wooden floor</p>
<p>⑤ Veranda</p> <p>By setting up the temporary seat of snow measures, resident can use in winter</p> <p>The sun drying of preserved food provisions</p> <p>Temporary seat</p>  <p>Opening and shutting type louver</p>	<p>⑥ Planting space</p> <p>Resident can freely maintain the planting space</p>  <p>Coloring of season is given to the site</p>

Fig. 4 Self Production of dwelling unit

Front door can put planting and the ornament, individuality and brightness arise on a monotonous passage (fig.4 ①)

Interior, the resident can freely change wallpaper and fixture (fig.4 ②).

When there is earth floor in the door, the toy, and the snow shovel used outside can be put, and it comes in the place of the hobby such as the ceramic arts (fig.4 ③).

Japanese-style room there is sliding door more than 1.5-Ken, it can be done various usages (fig.4 ④).

By setting up temporary seat in Veranda resident can use in winter (fig.4 ⑤).

Resident can maintain the planting space of common (fig.4 ⑥).

Snow Measures to Ease Living in Winter

To press the senior resident's going out, it is necessary to do the snow measures in the building and process the snow.

The snow of the roof caused the damage of the window, and snow entered the gateway in Kobata (photo6). The stairs in the gateway was covered with the snow and it was dangerous for walking in Toyama(photo7). Snow measures in the apartment building were not done.



Photo 6 Roof snow is dangerous



photo 7 Snowfall in doorway



Photo 8 Snow processing of common facility



photo 9 Snow processing of pavement

The refuse container storage was buried in the snow, so it was unpleasant (photo8).

The pavement to which the snow had been processed was covered with the snow again in Yamada (photo9).

The snow processing of parking lot, the snow removed in the surrounding was put (photo10). There were plant and play equipment in the park and only part becomes



Photo 10 Lack of snow depository



photo 11 Park use as snow depository

a snow depository (photo11).

Gangi is effectively used for the snow measures of apartment building. Snow processing tool and gas canister can store in the Gangi without getting wet. When Gangi side is flung open in summer, and the temporary housing seat is set up in preparation for blowing in the snow in winter, the outdoor life is enhanced. Planning to go from Gangi to the parking lot and the barn and the community center might be good (fig.2).

In the past research, Gangi were the community places in winter in Hokkaido. So, Patio is installed and the bench is put.

The parking lot secures worth of two cars parking space and arranges on the building side. The parking sign is put up at a position high so as not to be buried in the snow (fig.5 ①).

The eaves is installed in the gateway and the snow of the roof is prevented from dropping out. The gateway is made a floor material that doesn't slip easily.

The park is set up near the adjacent road so that an urgent vehicle and the snowplow can enter inside. The park has two functions

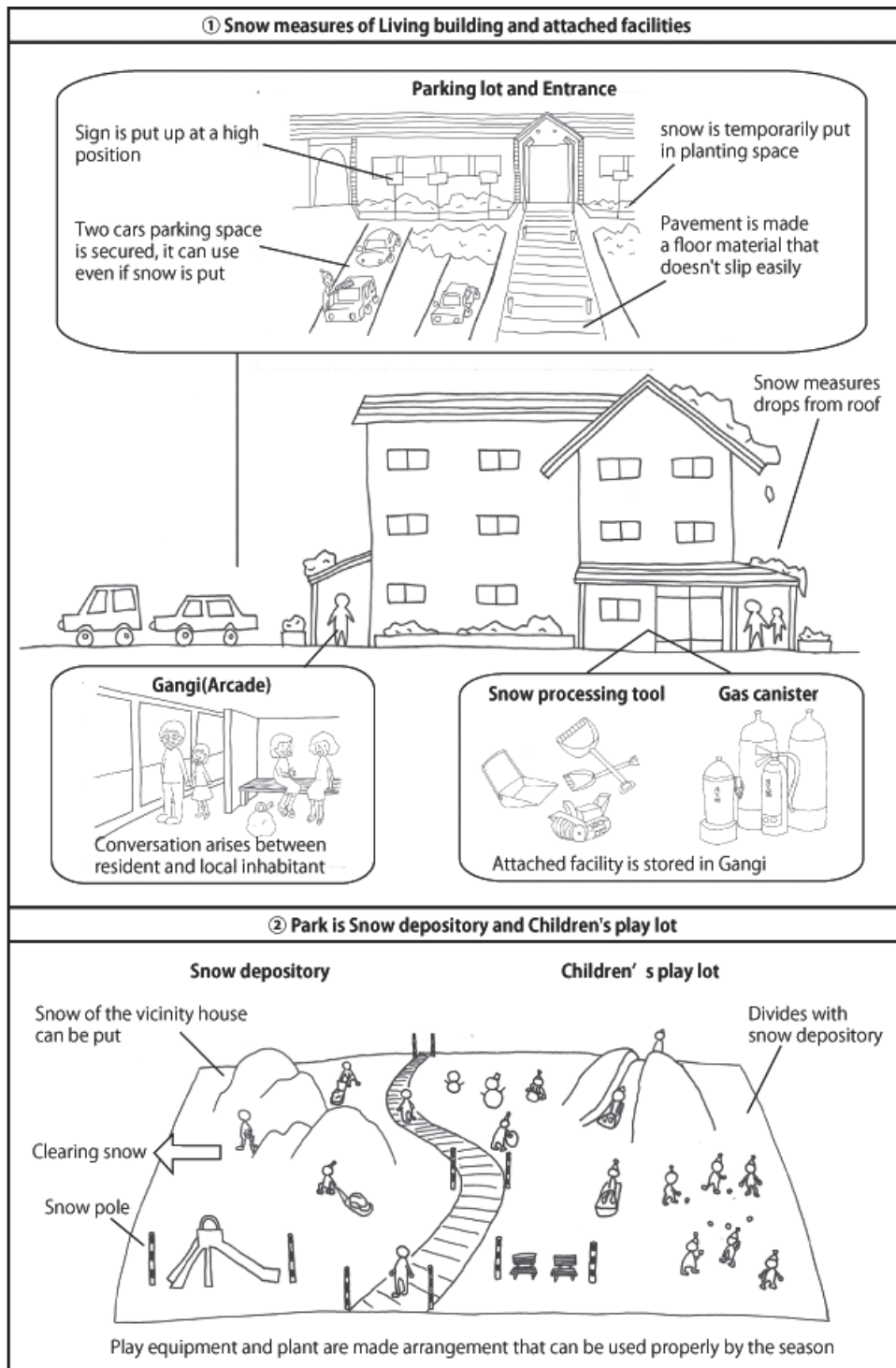


Fig. 5 Snow measures to ease living in winter

the playground and the snow depository in winter(fig.5 ②). The play equipment of the current park is fixed and the plant lay scattered, it was difficult to use it as a snow depository. So the play equipment keep possible detaching or is erected a pole and made a sign at the snowfall for a fixed type.

It is possible to play by skiing and the warp when the hill is planned to the children's play lot in the park

Meeting Room Supports Mind and Body

Because going out is limited because of the snow in winter, places that can gather near in the dwelling are necessary. So, we researched the snow measures in existing meeting rooms.

The snow of the roof had dropped in the gateway in Asahigaoka (photo12). Though the meeting room had been variously designed, but the snow measures of it were insufficient.

As for the entrance, the snow was not processed though the snow measures in the building were done like Kobata (photo13). The evidence used was not seen in Yamada.

The dwelling building was connected with the meeting room in Gangi in Toyama. But the snow enters in Gangi, and the snow has

piled in the stairs (photo14). Measures like the temporary housing seat were necessary though Gangi were set up.

The meeting room was used by local inhabitant in Jyosei (photo15). Though the Gangi was away from it and the snowfall was seen in front of the door, the snow fall was being processed by user. The effort by the user is also important.

The public apartment houses of the future should develop as a complex facility where the total support can be done to the resident in the surrounding on the life side. Meeting room plays a center role of the region as Life-support center (fig.6 ①).

First of all, the snow measures in the building are done so that it may function in winter. The entrance is made easy to enter by setting up eaves and Gangi. The floor is flattened so that the wheelchair may enter. According to the past research when there is a chair in the surrounding entrance, it is readily rests.

Daycare center can be attached to the meeting room, and bathing and the dinner party be done. The local resident can also readily use the dining room. In this resident's association becomes a subject and the event is held at each season, and the health movement, the dinner party, and the volunteer work are played continuing in cooperation with the neighborhood association.

The person's who manages these facilities being residing becomes the counselor of the elderly resident living alone etc., and the role for the resident to tie mutually is played.

Realistically think by the progress of aging is a place of the funeral. Not only the family home but also the living of various homes, and the methods of the funeral change, and who perform the last offices simply by the



Photo 12 Snow measures of the roof



photo 13 Snow processing of entrance



Photo 14 Snow measures of the Gangi



photo 15 Local inhabitant's use

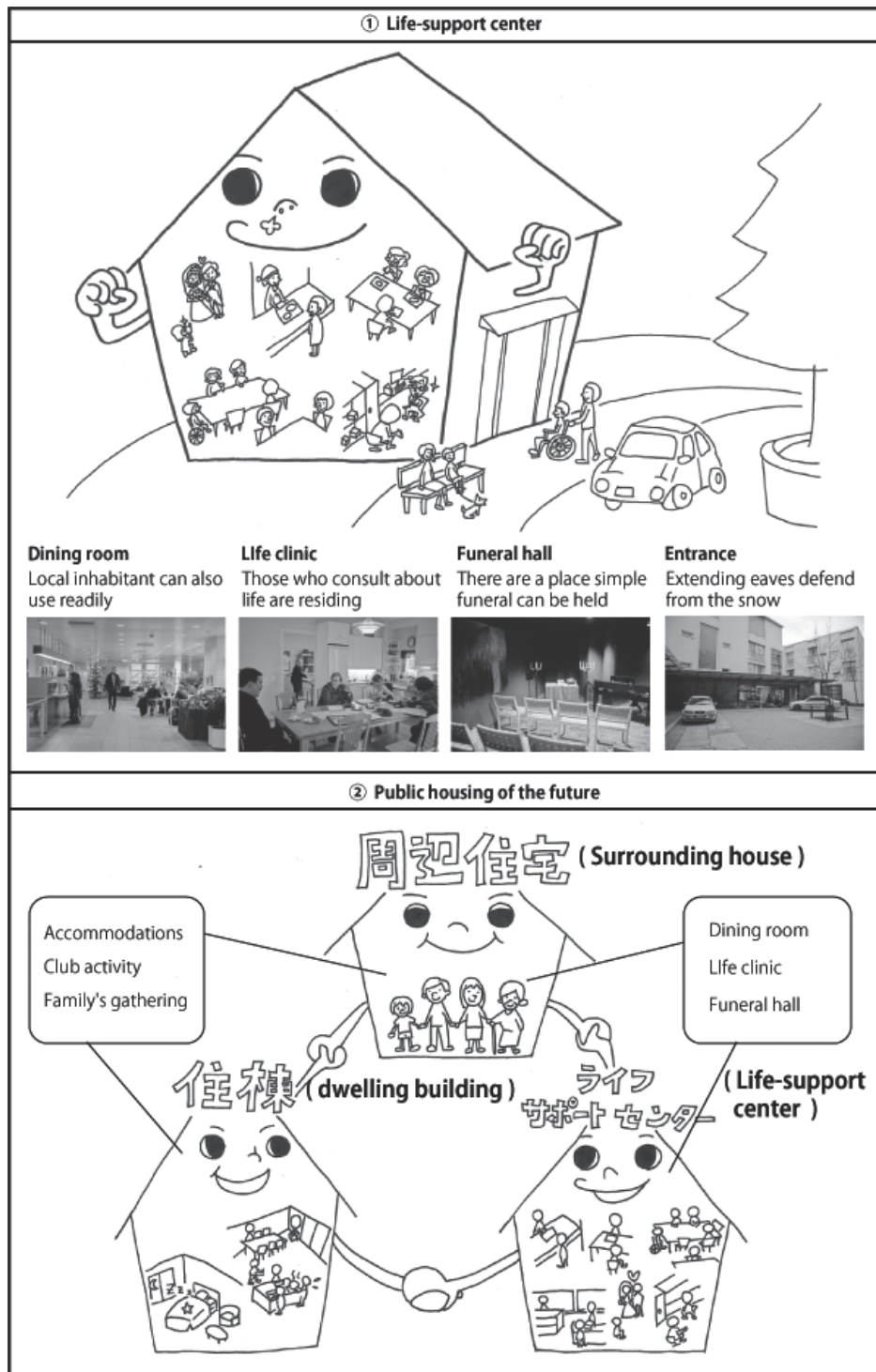


Fig. 6 Meeting room supports mind and body

few people has increased now. There may be a small-scale space for exhibition hall where the funeral can be held.

The existing public apartment houses don't have the place where it stays when the relative has visited the resident, when there is a guestroom where an outside person can stay in the dwelling building, resident's family can visit readily (fig.6 ②). The dinner party can be held by being equipped with kitchen. Moreover, kitchen can be used as a place where it enjoys the hobby like the cookery school and the flower school.

Conclusion

We investigated the snow problem and the current function of the public apartment houses in winter in Aomori. Therefore, we proposed house design to enhance the life.

1) The site planning was not considered the snow processing. So snow processing and regional use were enabled by arranging the park at the center.

2) In the dwelling building, the device that enhanced the life in winter was seen in the common space and half outdoor space. So, the resident's active house demand is answered in introducing SI house method.

3) There was problem in snow measures and the snow processing of the gateway where going out in winter was pressed. So, we proposed to use Gangi and to set up the snow depository.

4) Existing meeting room did not use well in winter. But meeting room is place to which it can live actively by readily going out in winter. So we proposed Life-support center, where supports mind and body.

The house design of public apartment houses, it is necessary to plan so that the

resident may live as final abode. So it is important to consider the life in winter and to have the relationship with local society.

Reference

- 1) K. Toriyama, T.Tsukidate, 2007." Study on the public housing of snow measures at Aomori Prefecture." Master's thesis
- 2) N.Takita, T.Noguchi, 2006. "Lifestyle in gangi of public housing of Hokkaido and Aomori as case study -Utilizations and opinions on Gangi as an easy out walking-transportation system- "pp.285-290, AIJ J.Technol.
- 3) A. Suzuki, T. Noguchi, 2004." Way of use and living of corridor of apartment houses in Hokkaido - Study on the common space design of apartment houses in the northern region - " pp.237-242, AIJ J. Technol.
- 4) K. Toriyama, T.Tsukidate, 2009." Study on common space' snow measures of public housing in snowy district - In case of public housing in Aomori, Hirosaki and Hachinohe city - " pp.241-244,AIJ J. Technol
- 5) K. Toriyama, T.Tsukidate, 2009. "Study on Meeting room's snow measures of public housing in snowy district - In case of public housing in Hokkaido, Aomori and Niigata - " pp.235, JSSI&JSSE Joint Conference
- 6) K. Toriyama, T.Tsukidate, 2009." Study on common space's snow measures of public housing in snowy district -Investigation of snow measures of Meeting room - " pp.147-152,AIJ proceeding of the Housing Studies Symposium 2009
- 7) T.Tsukidate, K.Toriyama, 2009. "雪国の集合住宅を考える" pp.20-35, A-haus july
- 8) "現代住宅研究の変遷と展望" 財団法人 住宅総合研究財団 2009. 9